

manual change transmittal

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TITLE	DIVISION OF DESIGN HIGHWAY DESIGN MANUAL SIXTH EDITION – DRAFT CHANGE 12/XX/15	Date Issued: 11/23/15
		Page 1 of 5
SUBJECT AREA	ISSUING UNIT	
Chapters: 10-500, 640-670, 700, 800-810, 850, and 900-1100	DIVISION OF DESIGN	
SUPERCEDES	DISTRIBUTION	
SEE BELOW FOR SPECIFIC PAGE NUMBERS	ALL HOLDERS OF THE 6TH EDITION, HIGHWAY DESIGN MANUAL	

Draft Chapters: 10-500, 640-670, 700, 800-810, 850, and 900-1100 of the Sixth Edition, Highway Design Manual (HDM) have been revised for broad circulation, review, and comment. The changes to the HDM are summarized below with change sheets attached with this email. Changes reflect the revised reorganization of Headquarters Division of Design, the District Design Delegation Agreements, and the California Stewardship & Oversight Agreement with the FHWA. Bikeway guidance was revised consistent with new Design Information Bulletin 89 entitled “Class IV Bikeway Guidance (Separated Bikeways/Cycle Tracks) to be published January 1, 2016. Also included is revised high-occupancy toll and express lane guidance consistent with passage of California Assembly Bill 194, new pedestrian crossing guidance, new discretionary fixed object guidance, revised design vehicle guidance, revised pavement guidance, revised highway noise abatement guidance consistent with the latest research, as well as revisions that reflect current nomenclature and other errata.

Your comments are requested by Friday, December 11, COB to Antonette Clark, HDM Editor, HQ Division of Design, MS 28.

A summary of the most significant revisions are as follows:

Index 11.1

Organization

The Index was revised to reflect the reorganization of Headquarters Division of Design (DOD) offices as a result of implementing delegation of design decisions to the districts for specific projects based on facility type. DOD responsibilities are focused towards corporate functions such as policy development, tools, and guidance, professional development, process reviews, statewide lessons learned and innovation.

Figure 11.1

Division of Design Functional Organization Chart

Replaced the existing figure with the revised DOD functional organization chart.

Index 43.2

California Stewardship & Oversight Agreement with FHWA

Revised guidance to reflect the recently executed Stewardship & Oversight Agreement between Caltrans and FHWA.

Index 62.1

Geometric Cross Section

Added a definition for Class IV Bikeway (Separated Bikeway) consistent with new Design Information Bulletin 89, which will take effect January 1, 2016.

<u>Index 62.2</u>	Highway Structures Expanded and revised bridge and culvert definition consistent with the current CFR 650.305, while clarifying the design responsibilities for various types of buried structures.
<u>Index 82.1</u>	Highway Design Manual Standards Clarified when to document engineering decisions, other than deviations from mandatory and advisory standards, in the project files as a memo to file.
<u>Index 82.2 (1)</u>	Approvals for Nonstandard Design Revised Index to reflect the new District delegation policy as well as the Stewardship & Oversight Agreement between Caltrans and FHWA.
<u>Index 82.3</u>	FHWA and AASHTO Standards and Policies As of the October 13, 2015 Federal Register, Volume 80 Issue 197, the 2011 version of the AASHTO publication, A Policy on Geometric Design of Highways and Streets is the current national policy.
<u>Index 103.2</u>	Design Period Design guidance specific to roundabouts was expanded and relocated to Index 405.10(1).
<u>Index 105.6</u>	Pedestrian Crossings New pedestrian guidance and figure was added to define and illustrate typical marked and unmarked crosswalks where pedestrian facilities are to be provided per the California Vehicle Code.
<u>Index 108.6</u>	High-Occupancy Toll and Express Toll Lanes Corrections resulting from passage of Assembly Bill 194, which will take effect January 1, 2016.
<u>Figure 110.12</u>	California Mining and Tunneling Districts Corrected reference location illustration within San Bernardino County.
<u>Index 115.1</u>	Designing for Bicycle Traffic, General Reference added to new Design Information Bulletin 89 for Class IV Bikeways (Separated Bikeways) guidance.
<u>Figure 201.6</u>	Stopping Sight Distance on Horizontal Curves Corrected stopping sight distance reference on graph for R=4000 feet.
<u>Index 208.6</u>	Bicycle and Pedestrian Overcrossings and Undercrossings With the addition of Class IV bikeways (separated bikeways) guidance, reference was added to clarify that bicycle overcrossings or undercrossings may be considered Class I or Class IV bikeways.
<u>Topic 301</u>	Traveled Way Standards Bike lanes are typically within the shoulder and not part of the traveled way, therefore the paragraph was corrected accordingly.

<u>Index 301.2(1)</u>	Class II Bikeway (Bike Lane) Lane Width Guidance related to buffered and contraflow bike lanes currently exists in the California MUTCD, where a reference was added to this effect. Reference to new Class IV bikeway (separated bikeway) guidance in DIB 89 was also added.
<u>Index 302.3</u>	Tapered Edge Minor wording change from “safety edge” to “tapered edge” to better describe the intended feature with related expanded guidance.
<u>Table 303.1</u>	Selection of Curb Type Note (2) of the table made reference to retired Design Information Bulletin Number 80. The note was corrected to reference the National Cooperative Highway Research Program Report 672 for information on curbs at roundabouts.
<u>Index 303.2</u>	Curb Types and Uses Minor typographical error.
<u>Index 309.1(2)</u>	Clear Recovery Zone (CRZ) New guidance was added which defines “necessary highway features” and “discretionary fixed objects” as well as their placement within State right of way.
<u>Index 403.6(1)</u>	Turning Traffic The advisory design standard with respect to providing a minimum 4-foot width for bicycle use between the right-turn-only lane and through lane was corrected for consistency with Index 301.2(1).
<u>Topic 404</u>	Design Considerations STAA trucks are the industry standard and guidance was revised to reflect STAA truck accommodation on all STAA and California Legal routes, including California Legal KPRA Advisory routes. The California Legal design vehicle application has been changed to only be used when the accommodation of the STAA truck is not feasible. Terminology was updated or clarified throughout the Topic.
<u>Index 405.10</u>	Roundabouts Expanded guidance on design period to reflect current FHWA guidance and practices. Revised pedestrian use guidance, first and second bullet, due to revised RSP A88A, dated July 3, 2015, which no longer requires placement of a grooved border on curb ramps. Added guidance on the maintenance of roundabouts in climate regions where snowfall occurs and the use of snow removal equipment is necessary.
<u>Index 504.3(3)</u>	Location and Design of Ramp Intersections on the Crossroads New guidance was added to address available geometric considerations for reducing the potential of wrong-way movements at interchange ramps.
<u>Figure 504.3J</u>	Location of Ramp Intersections on the Crossroads Corrected reference line to limit line shown on figure and added a note of reference to the California MUTCD for limit line placement and guidance.

<u>Chapter 640</u>	Composite Pavements Various changes throughout the chapter were undertaken to improve clarity including the addition of mechanistic-empirical design procedures.
<u>Chapter 650</u>	Pavement Drainage Nomenclature and instructions were updated to reflect the changes made elsewhere in this manual.
<u>Chapter 660</u>	Pavement Foundations Changes include new topics for cement stabilized soil, full depth reclamation, and treated bases following their recent addition in the Standard Specifications. The new guidance reflects refinements to the strategies and techniques, which Caltrans uses to ensure strong, stable bases for pavement structures.
<u>Chapter 670</u>	Tapers and Shoulder Backing A new topic on shoulder backing was added to provide design guidance and requirements for selecting shoulder backing materials as well as guidance on when and where to place shoulder backing material for pavement edge support of existing pavements.
<u>Index 701.5</u>	Other Fences Guidance was added to account for the added wind loading and transfer loading to fence support posts when privacy slats are added to chain link fabric.
<u>Table 701.5</u>	Slatted CL-6 Post & Footing Dimensions New table provides the increased post and footing dimensions for slatted chain link fence that account for the added wind forces. The dimensions are given for both “unconstrained” or weak soil conditions as well as “constrained” or paved surface conditions.
<u>Topic 808</u>	Selected Computer Programs Minor rewording to clarify the use of compatible software packages.
<u>Index 819.2 (1)</u>	Empirical Methods Typographical corrected of the runoff coefficient “C” equation.
<u>Table 819.2C</u>	Regional Flood-Frequency Equations The Table was supplemented using USGS Table 9 information from the “Estimation of Flood Magnitudes and Frequency of Floods in California” article.
<u>Table 853.1B</u>	Guide for Plastic Pipeliner Selection in Abrasive Conditions to Achieve 50 Years of Maintenance-Free Service Life Expanded table to include other plastic pipeliner selections.
<u>Index 903.4(5)</u>	Safety Roadside Rest Area, Bicycle Parking Minor correction of statement to reflect consideration of bicycle parking specifically at safety roadside rest areas.

Index 1001.1

Bicycle Transportation

Added reference to new DIB 89 for Class IV bikeways (separated bikeways) guidance, which takes effect January 1, 2016 as well as other bikeway publications and manuals developed by others for additional guidance not covered in this manual.

Index 1002.1(5)

Class IV Bikeway (Separated Bikeway)

Sub Index added to include new Class IV bikeway (separated bikeway) guidance and reference to DIB 89, which will take effect January 1, 2016.

Figure 1003.1A

Two-Way Class I Bikeway (Bike Path)

Added Note (3) referencing the AASHTO Guide for the Development of Bicycle Facilities for further Class I guidance.

Figure 1003.1D

Minimum Lateral Clearance (m) on Bicycle Path Horizontal Curves

Corrected typo in the formula for minimum lateral clearance.

Index 1101.2

Highway Noise Abatement – Objective

The text was updated to better reflect the latest research into lowering noise levels through advancements in quieter pavements, quieter bridge decks and low noise rumble strips. The paragraph regarding the concept of ‘extraordinary abatement’ has been deleted to reflect its elimination from the Federal Code 23CFR772. Revised wording from “affected” receptors to “impacted” receptors in agreement with the Federal Code change in terminology.

Index 1102.3

Noise Barrier Height and Position

Expanded the name of the Index to better describe all the guidance within. The text was updated to include new absorptive noise barrier systems, giving designers more options for addressing project noise impacts. A reference was added to the new products pre-approved list and website.

Index 1102.6

Noise Barrier Aesthetics

The text was updated to include new transparent barrier systems, giving designers more options for addressing project noise impacts. A reference was added to the new products pre-approved list and website.